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VIA UPS NEXT DAY AIR

August 8, 1996

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Room 222
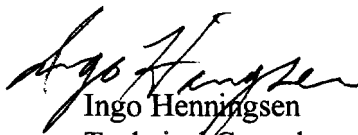1919 M. Street, NW
Washington, D.C.20554

Re: CC Docket No. 96-45

Dear Sir or Maddam:

Please find enclosed an original and four copies of the comments on cost models of the states of Maine, Utah, New Mexico, and Vermont this Docket.

I have also enclosed one additional copy, marked "STAMP COPY." Please date stamp this copy and return it to me in the enclosed postage paid envelope.

Sincerely,

Ingo Henningsen
Technical Consultant

No. of Copies rec'd _____
List A B C D E

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of the request of the)
Common Carrier Bureau for further)
comment on cost models in the) CC Docket No. 96-45
Universal Service notice of proposed)
rulemaking .)

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COMMENTS OF:
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NEW MEXICO CORPORATION COMMISSION
STATE OF UTAH DIVISION OF PUBLIC UTILITIES
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These comments apply primarily to the Benchmark Cost Model 2 (BCM2). As a result of the limited time between the filing, and public availability of the BCM2 as well as the deadline for filing, these comments should be considered preliminary. Both the staff of the Maine Public Utilities Commission and the Utah Division of Public Utilities are engaged in a more thorough analysis of BCM2 as well as of the Cost Proxy Model (CPM) and Hatfield 2.2 Release 2. These reports are expected by the end of September, 1996. The commenting parties expect to file additional comments once analysis of these models has been completed. To the extent that the other models such as Hatfield depend on BCM1 or BCM2 outputs these comments are equally applicable to these models. We understand that the Hatfield model is still based on BCM1 rather than BCM2. To the extent that the Hatfield model has not been updated to incorporate changes made in the BCM2 it contains additional deficiencies.

Some of the sponsors (i.e. BCM2) of the various proxy models have stated in their comments that they do not advocate the use of these models as price setting mechanisms. Other parties have advocated that one or more of the proxy models are appropriate for pricing purposes. The commenting parties support the position that, until the various inputs to the models can be demonstrated to have a direct correlation to cost causality and its magnitude, the proxy models are not appropriate for determining prices at this time.

The following discussion lists the major concerns that the Joint Commenting states have found thus far in their analysis of the BCM2 as it is currently designed:

1. Verification of Factor Accuracy.

Before this model can be used for any purpose it must be demonstrated that the factors used for various cost criteria are accurate in that they bare the correct proportional relationship to cost causality. As stated later in these comments, there is a relationship between slope and cost, but the factor currently used in BCM2 vastly underestimates the impact on loop length caused by slope. Similarly, the Model employs numerous factors for such things as soil type and topograghpy, However, no evidence has been provided to assure that these and other factors are accurate.

2. Documentation

We applaud the proponents of BCM2 for making a large number of the assumptions upon which the model is based user-defined. However, the proponents need to provide the data sources and specific algorithms for arriving at each of the "user-defined" input values. One of many examples is a default value of 1.2 for the "structure cost multiplier for cables 401 to 900 pair versus < 400 pair." What are the data upon which this value is based and exactly how is this value calculated? If the model is to be adjusted to more adequately reflect state-specific circumstances and is to be used in future years, then detailed documentation is required on these user-defined inputs.

3. Adjustment to 1990 Census Figures

BCM2, as was BCM1, is based on 1990 household census data. The data used to calculate cost factors are, we assume, for 1994. There does not appear to be an adjustment made

to the 1990 household numbers to "inflate" household counts to 1994 values. The total lines by Census Block Group (CBG) number that is carried through the model's algorithm is the estimated business lines (1990) added to the 1990 household count multiplied by the residential lines per household. Although this calculation may not affect estimated cost per line, if total lines are entered into the cost calculation as a simple product, it will distort the total line counts and total cost estimates that are presented on the summary page. However, to the extent that the total number of lines is used to determine cable sizes, bias in the estimated per line cost will be introduced.

4.   Switch Costs

The switching costs modeled are not appropriate for those rural areas where customers must be served by using very small switches or remotes. In some areas such as rural Maine, Vermont, Utah, Montana, and Alaska many switches actually in use have less than 500 lines. It is not uncommon in some of these jurisdictions to have switches or remotes serving less than 100 lines. BCM2 employs a switch cost per access line. The highest switch cost per access line is presently calculated using the cost for a switch that serves 10,000 lines. We recommend that per line switching costs be modeled for switches having less than 100 lines, 100 to 500 lines, 500 to 1000 lines, 1000 to 5000 lines, and 5000 to 10,000 lines in addition to user inputs already provided in the model. Much of the switching cost data can be obtained by looking at the books of account or RUS statistics for those companies having very small switches which have recently replaced switches. Furthermore, another source for the relative magnitude of per line switching costs for very small wire centers are the comments filed by OPASCO, NTCA, and United Utilities

of Alaska in response to the proposal to eliminate DEM weighting in CC Docket 80-286. In addition, switching costs should be weighted to reflect future costs.

5. Assumption Validity

The model makes a number of assumptions in calculating costs which are not realistic under certain circumstances. The model should allow a user to change these assumptions if the assumption results in a meaningless or impossible situation. For example, the model makes the assumption that any given CBG is served from the closest wire center. That assumption does not consider whether or not a mountain range or lake lies between a wire center and the CBG being served. The current BCM2 will cost out a loop based on air distance and the right-angle methodology regardless of whether such a route is actually feasible. This problem is likely more prevalent in rural areas.

6. Slope Multiplier

We applaud the proponents of BCM2 for the inclusion of a slope multiplier in this revision of the model. However, there is a concern that the magnitude of the slope multiplier is not large enough. The slope multiplier should be large enough to convert the point to point distance calculated in the model to route miles of plant. Based on the reviewers' experience, the conversion factor from point to point distance to route miles is significantly understated for very mountainous areas such as those in Appalachia and the inter-mountain west. We estimate the conversion factor could be as high as a 2 to 3 times multiplier as opposed to the 1.5 times multiplier used in the understated.

7. Remoteness Multiplier

Operations and maintenance (O&M) costs are higher in very remote areas. The costs of goods, supplies and transportation are higher on a per unit basis. Furthermore, labor costs are higher because the very remoteness of these areas requires hiring more people to be disbursed throughout this remote area than would be required in a more urban area. This is caused by the fact that maintenance personnel must be located a reasonable distance from the facilities for which they are responsible in order to provide a reasonable level of service. These higher costs are not reflected in the BCM2. The Joint Commenting States believe that a user specified O&M multiplier for remoteness is appropriate. In addition, it is likely that installed costs of facilities may also be higher in some very remote areas such as areas of Alaska not accessible by roads where all supplies and equipment must be flown in. The model should include an input to adjust for this factor. Perhaps a combined multiplier for non-road accessible areas, including those non-road accessible areas in certain seasons, is appropriate.

8. Forward-Looking Cost Data

A cost proxy model should reflect forward-looking rather than historical costs. BCM1 recognized this and allowed the user to specific two types of cost factors: one based on ARMIS data and a forward-looking estimate. In BCM2, the annual cost factor is broken out by cable & wire, circuit equipment, and switching equipment. These are based on ARMIS 1995 and, hence, are historical. However, they are a user specified input (Factor 1) and can be changed to reflect forward-looking costs. The model should, on the user input page, be very explicit in terms of what each of the changeable inputs refer to and upon what assumptions the default values are

based (e.g., how are they calculated).

9.   Size of CBGs

The use of CBG's is inappropriate for very rural areas. The existing BCM2 still models the cost of serving the entire CBG from the wire center closest to the centroid of the CBG. In the case of very large, sparsely populated CBG's containing more than one wire center, this method ignores the actual more economical method of service. The Joint Commenting States are concerned that this method may still result in CBG's that are too large and thereby overestimate costs in those areas. The Joint commenting states recommend the use of a different and smaller geographical unit of measurement, at least for very rural areas, to overcome this problem. The Utah Division of Pubic Utilities is currently analyzing the grid methodology employed by Pacific Bell's CPM to determine whether or not the smaller grid based geographic units can be incorporated in the BCM2.

10.   Uniform Distribution

BCM1 assumed that households were uniformly distributed throughout a CBG. BCM2 improves on that assumption by assuming that population is evenly distributed along the roads in a CBG in low density CBGs. The new assumption is an improvement but is still not realistic. Population in rural areas is likely to be clustered in towns and less along roads included in the CBG. The model should be modified to reflect this fact. A model which decreases population density along roads in direct proportion to the population distance from a town of a minimum population size would be an improvement to the accuracy of the BCM2.

11.   Road Methodology

BCM2 includes costs to provide service only to those areas within a rural CBG that are 500 feet on either side of an existing road. The implicit assumption is that if there are no roads then there are no people to serve. This assumption may be inaccurate in some areas. There are households that have telephone service but do not have access to a road. Rather they are only accessible by boat or airplane. This not only a problem in Alaska and low population states along the Canadian Border but is also a problem in other mountainous states such as Utah. The Dangling Rope marina along Lake Powell in Utah is an example of one such location. The only access to this marina and its telephones is by boat. Using existing road data only will overlook the cost of providing service in particularly remote areas.

12.   Loop Cost Caps

BCM2 caps loop costs at $10,000 because of its assumption that areas having loop costs of over $10,000 will be served by radio. Several rural states have telephone subscribers with loop costs well in excess of the $10,000 cap. In some cases it is not possible to serve these customers with radio because of the technical, environmental or logistical problems. For example, some areas are so remote that they are even beyond the reach of conventional radio systems. Other areas serve customers where radio cannot be used because of legal restrictions such as in the "Radio Quiet Zone" of West Virginia. Other areas may not be able to use radio because of restrictions relating to the placement of antennas. Finally, radio use is difficult, if not impossible, in order to provide telephone service in areas not served by electricity and lacking sufficient sunlight such as northern Alaska. The cost of these very high cost loops should be reflected in the

model.

13. Small Company Factor

The model assumes the same cost of providing service no matter who or what the entity is

providing the service. Larger entities providing service are apt to receive quantity discounts for

the purchases needed to provide and maintain service. A factor incorporating this cost difference

must be incorporated into the model if small companies are going to be able to provide service

within the cost estimates generated by the model.

14. Comparison with Actual Costs

While we cannot expect that any model will model costs at the same level as embedded

costs, the results of the BCM2 need to be compared with study area actual costs. If the model

does not produce higher costs on an aggregated basis for those areas currently exhibiting high

costs, then the model should either: (1) not be used or (2) a transition period based on actual

costs must be provided to allow continued comparable and affordable rates in those areas

currently receiving high cost funding. We recommend that at least the relative order of magnitude

of costs predicted by any proxy method must be consistent with relative order of magnitude of

actual costs for any proxy method to be useful.

15. Square CBG Assumption

The model makes the assumption that the serving areas are square regardless of the actual

geometric configuration of any individual CBG. For example, a twenty five square mile CBG

having dimensions of twelve and one half by two miles. Will be modeled as five miles by five miles square. This modeling will vastly distort and understate the cost of providing service at the peripheries of the actual CBG because the model will be modeling maximum loops of a little more than three miles in length rather than modeling loops over six miles in length as should be done.

16. Uniform National Traffic Assumption

The BCM2 assumes that the same traffic factors exist nationwide to engineer switching and inter-exchange transport facilities. Based on existing data it is known that traffic is not uniform on a national basis and varies significantly between areas. To the extent traffic quantity differences are known user inputs should be provided and those traffic differences should be incorporated in the model. The Hatfield model does allow for this type of adjustment.

17. Installation and Structure Multipliers

The BCM2 assumes a fixed multiplier for structure and installation costs. The actual cost of structures may vary greatly between geographical areas. For this reason structure costs should be modified to reflect historical differences in structure cost requirements in different locations. With regard to installation costs another problem may be present. It is not obvious that BCM2 changes the treatment of installation costs from being a "loader" on investment. Hence, using the model, two different areas having the same installation costs for cable would have different installation costs predicted by the model if the costs of the cable were different. To remedy this problem installation costs should not be linked to the cost of cable but some other factor such as the length of the cable being installed.

18.   Fill Factors

The BCM2 allows only two possible fill factors, urban or rural. The fill factor should be expanded to allow for other factors, particularly growth which may be more significant than fill factor caused by differences in density.
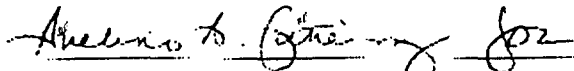
19.   Business Access Lines

BCM2 uses employee counts within census block groups as a proxy for business access lines within the CBG. While we view this as a significant improvement relative to BCM1, we observe that businesses differ in their "telephone intensity" (the ratio of access lines to employees). One solution may be to apply Standard Industrial Classifications (SIC) to the employee data.
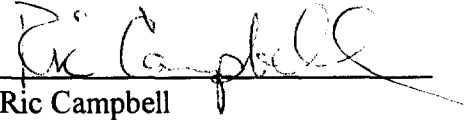
20.   Fiber / Copper Breakpoint

Although the BCM2 provides a user adjustable breakpoint between the use of fiber versus copper for the provision of loops it only employs a single breakpoint for all density groups. We believe sound engineering practice will show that the fiber vs copper breakpoint will vary based on the density of the serving area. Furthermore, the breakpoint employed in the current model may not match current actual engineering practice for any areas.

for the

New Mexico State Corporation Commission

[signature]

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For the
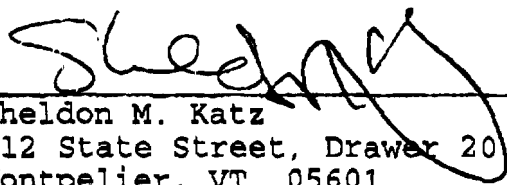Utah Division of Public Utilities

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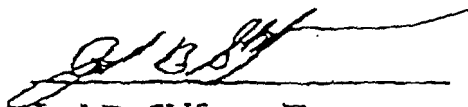Salt Lake City, Utah 84114-6751

for the
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By: _____

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of August 1996, copies of the foregoing comments of:

the state of Maine Public Utilities Commission,
the state of New Mexico State Corporation Commission,
the state of Utah Division of Public Utilities and
the state of Wyoming Public Service Commission

were mailed by first class, postage prepaid , to the parties listed on the attached service list.

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